

What Is Claimed Is:

1. A device for measuring a force in a predefined direction, comprising:

    a sensor element having a sensing region;

    a carrier element, the sensor element being connected to the carrier element;

    a packaging element, the sensor element and the carrier element being at least partially surrounded by the packaging element, the carrier element and the packaging element being joined to one another in such a way that, in the predefined direction, a temperature-induced expansion of the sensor element, the carrier element and the packaging element is substantially compensated in relation to the sensing region of the sensor element.

2. The device as recited in claim 1, wherein the sensor element has a first expansion segment, the carrier element has a second expansion segment, and the packaging element has a fourth expansion segment, and wherein in a predefined temperature range, a sum of the first and second expansion segments being provided, independently of temperature, as substantially equal to the fourth expansion segment.

3. The device as recited in claim 1, further comprising:

    a compensation element, the carrier element and the packaging element being joined to one another in such a way that, in the predefined direction, a temperature-induced expansion of the sensor element, the carrier element, the packaging element, and the compensation element is substantially compensated for the sensing region of the sensor element.

4. The device as recited in claim 3, wherein the sensor element has a first expansion segment, the carrier element has a second expansion segment, the compensation element has a third expansion segment, and the packaging element has a fourth expansion segment, wherein in a predefined temperature range, a sum of the first, second, and third expansion segments are provided, independently of temperature, as substantially equal to the fourth expansion segment.

5. The device as recited in claim 1, wherein the packaging element includes one of a jacket encasing tube or a steel encasing tube.

6. The device as recited in claim 1, further comprising:  
a membrane, wherein in one predefined temperature range, a force of the membrane acting on the sensing region is the same, independent of temperature.

7. The device as recited in claim 6, wherein one of:  
i) the membrane is joined in one piece to the packaging element, or ii) the membrane is joined to the packaging element using a jointing technique.

8. The device as recited in claim 1, wherein the carrier element and the packaging element are joined to one another by welding.

9. The device as recited in claim 8, wherein the welding is a laser welding.

10. The device as recited in claim 1, wherein the sensor element includes a substrate material, the substrate

material being one of silicon on insulator or silicon carbide on insulator.

11. The device as recited in claim 1, further comprising:

a connection element, the connection element being directly or indirectly joined to the sensor element using at least one of wire bonding and flip-chip contacting.

12. The device as recited in claim 1, wherein the packaging element is a steel encasing tube provided with metal wires, the metal wires being joined by welding or bonding directly to the sensor element or indirectly via the carrier element to the sensor element.

13. The device as recited in claim 1, wherein the carrier element has a guidance function in the packaging element due to a cross-section design of the carrier element.

14. The device as recited in claim 1, wherein the packaging element includes a packaging head that is connected to a steel jacket tube.

15. A device for measuring a pressure, comprising:

a sensor element having a sensing region;

a carrier element, the sensor element being connected to the carrier element;

a packaging element, the sensor element and the carrier element being at least partially surrounded by the packaging element, the carrier element and the packaging element being joined to one another in such a way that, in the predefined direction, a temperature-induced expansion of the sensor element, the carrier element and the packaging element is

substantially compensated in relation to the sensing region of the sensor element;

wherein a measurement of a pressure force acting on a measurement surface is used in measuring the pressure.

16. A pressure sensor, comprising:

a sensor element having a sensing region;

a carrier element, the sensor element being connected to the carrier element;

a packaging element, the sensor element and the carrier element being at least partially surrounded by the packaging element, the carrier element and the packaging element being joined to one another in such a way that, in the predefined direction, a temperature-induced expansion of the sensor element, the carrier element and the packaging element is substantially compensated in relation to the sensing region of the sensor element;

wherein a measurement of a pressure force acting on a measurement surface is used in measuring the pressure.